

THE BIRDS OF CALICOAN, PHILIPPINE ISLANDS

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FROM February 15 to November 5, 1945, I was stationed at the U. S. Naval Supply Depot on Calicoan, a coral island about 10 miles long and half a mile wide, lying approximately 300 yards off the southern tip of Samar in the Philippine Islands. Except for a few palm groves, the island was covered with a dense, nearly impassable forest. The island was sparsely populated. There was a thin layer of sandy earth in the palm groves and in a few of the low gullies which supported banana plants; the rest of the island was bare coral, even in the dense forest areas. The gulf shore was mostly narrow sandy beach, but the Pacific shore was a barren coral cliff from 10 to 60 feet high. A narrow ridge from 100 to 200 feet high ran lengthwise down the center of the island. This central ridge was densely wooded and impossible to penetrate except along one or two native trails, which were very difficult to find and equally hard to follow. Along the edge of the central ridge were a few areas of low, scattered brush. By early summer the palm groves and level areas had been cleared and taken over by naval activities.

Calicoan has probably not previously been visited by an ornithologist, although the central part of Samar was worked by the J. B. Steere expedition (1887-88), Bourns and Worcester (1890-92), and by Whitehead in 1896.

My field work was carried on almost daily from 4:30, or 5:00, to 6:00 p.m., and toward the end of the summer I spent most Sundays and an occasional full afternoon in the field, making a total of approximately 350 hours of field work. It was practically impossible to carry out any systematic research program due to the demands of naval service and the fact that the development of the naval base required the clearing of almost all of the island except the high central ridge. I was able, however, to obtain some data on the life history and behavior of several species and to collect specimens of most of these, some of which had not previously been recorded from Samar.

The greater part of my field work was done in an area of about 45,000 square yards in the central part of the island, determined from the available charts to be $10^{\circ} 59' 30''$ N., $125^{\circ} 47' 40''$ E. Part of the area was a small saucer-like valley forming one of the two or three natural breaks in the high central ridge. All specimens taken are now in the University of Michigan Museum of Zoology.

Butorides striatus carcinophilus. Little Mangrove Heron.—♂, September 29. Eyes yellow; bill black, with basal half of lower mandible greenish-ivory; pea-green spot at the base of the bill in front of the eye; legs and feet brownish in front, green to yellowish in back; foot-pads yellow.

I seldom searched the beach for birds, and the few birds of this species seen were single individuals, feeding on coral reefs in September and October.

Egretta sacra. Reef Egret.—♀, September 14. Eyes yellow; feet greenish-yellow. It was alone on the coral rocks at the edge of the ocean. Species not recorded from Samar or Leyte by McGregor (1909) or Hachisuka (1932).

I saw five or six birds of this species feeding at low tide on the coral reefs, the first on June 1. From June 20 through July, I saw one or two almost daily, feeding on the reefs at any time of day; thereafter I saw them only occasionally (through October). Probably not more than six individuals regularly frequented the half-mile of beach I observed. One was seen feeding in a tidal pool (about 25 feet in diameter) with a white egret, probably the same species in the white phase; they were antagonistic, and each would drive the other way when it approached closer than four or five feet. While feeding, the egrets actively searched the shallow water, their necks stretched forward just above the surface.

Haliastur indus. Braminy Kite.—Not collected. I saw the species, at least once a week from April to October, soaring high over the center of the island and occasionally up and down the shore.

Accipiter trivirgatus extimus. Crested Goshawk.—♂ and ♀, September 5. Bills brownish-gray; eyes, legs, and feet yellow. Stomach of ♂ contained lizard-like item, that of ♀ was empty. Wing lengths, 179 mm. in ♂ (182-188 reported by Mayr in Delacour and Mayr, 1945:106); 205 mm. in ♀ (208 reported by Mayr).

The pair collected were observed speeding through dense forest in a chase, the ♂ in the lead. The ♂ lit in low brush about 4 feet above the ground, and the ♀ perched at a height of about 15 feet, some 20 feet away.

Spilornis cheela holospilus. Serpent Eagle.—♀, July 19. Bill bluish-slate except for black tip; eye yellow; stomach held grasshopper and brown beetles 2½ inches long.

♂, August 19. Eye, feet, and legs yellow. An opaque scar on the cornea over the iris probably rendered this bird blind in one eye in the opinion of the two station doctors. The stomach was crammed with thick insects an inch long, a land crab, and some bits of shell. The crop contained a 17-inch brownish-black snake with prominent fangs. This specimen was shot at 5:30 when it flew into a tree after chasing a small bird into dense brush.

Two or three of these eagles were seen every week from March through October, usually in singles or pairs, perched, as a rule, on high dead limbs overlooking an open area. Once in October, I saw 5 in an area of 10,000 square yards.

Their call was a loud, high, tremulous whistle somewhat like that of a Screech Owl (*Otus asio*). They called back and forth and would reply if I imitated them.

Microhierax erythrogenys meridionalis. Samar Pigmy Falcon.—♀, May 10. Bill and feet black; eyes brown; stomach contained bright green orthoptera-like insects; ovary about 6 mm. One of a pair perched at dusk on a dead tree overlooking a pool of water. Mud was plainly evident on the bill and legs of the specimen taken.

♀, May 18. Soft parts colored as above. Taken at dusk from a dead limb at the top of a high tree.

I saw only five or six of these Pigmy Falcons on Calicoan. They flew and acted much like Purple Martins (*Progne subis*). Near the end of May, I saw a pair flying to and from a hole about 30 feet up in a high tree, each bird entering the hole alternately and sometimes remaining inside for about 30 seconds.

Pluvialis dominica fulva. Pacific Golden Plover.—2 ♂♂, September 17. Bills black; legs and feet slate; eyes brown.

The two specimens I collected were the only birds of this species that I saw. They were standing within a foot of each other on barren rock 50 yards from the sea at noon during low tide. McGregor (1909:104-105) gives no Samar record for this migrant but reports it elsewhere in the Philippines on grassy or wet sites away from the coast. Delacour and Mayr (1946:70) record it as a "common visitor" in the Philippines.

Numenius phaeopus variegatus. Whimbrel.—2 ♀ ♀, September 15, from a flock of 8 on the rocky coast. Bills black except the basal half of the lower mandible, which was flesh color; feet chalk blue.

♀, September 18, shot from a flock of four. Bill and feet as above; eyes blue-black. Stomach contained grape-like fruit full of small seeds similar to that found in the stomach of the Blue Rock Thrush.

A flock of eight, first seen about September 12, comprised, I believe, all the birds of this species that were in the area. One individual remained and was seen regularly until mid-October. They were always seen resting on the rocky shore, feeding on the exposed reefs at low tide, or flying over the water parallel with the coast line. They were usually feeding with several other species of shore birds, and when these mixed flocks were disturbed, each species formed a flock of its own and flew off, without reference to the actions or direction of the other flocks.

Heteroscelus incanus brevipes. Polynesian Tattler.—2 ♂ ♂, September 20. Bills black, except for yellowish base of lower mandible; eyes blue-black; feet and legs greenish-yellow; stomachs empty. They were shot from a flock of about 20 of the same species resting on the rocky coastal ledge at 5:45 during high tide. Both birds were very fat.

I saw three flocks of from 10 to 20 birds regularly from mid-September to mid-October. McGregor cites no record from Samar but notes that it occurs in great numbers on tide flats during migration.

Ereunetes minutus ruficollis. Little Stint.—♀. March 30. Caught by hand in coral sand along the coast at night during heavy rain and wind; possibly blinded by car lights.

I saw a group of 6 to 10 birds believed to be this species in the same general area for a week before and a few days after the date this specimen was taken. While walking along the beach in bright moonlight about 9 o'clock on March 23, I saw many small shore birds, which may have been this species, feeding along the water's edge.

While this species is not reported from Samar or Leyte by McGregor (1909:135), it is reported as common in the Philippines by Delacour and Mayr (1946:73).

Phalaropus lobatus. Northern Phalarope.—♀. October 1. This fat, crippled specimen was caught by hand at the rear of one of the naval warehouses against which it had probably flown. I saw no other phalaropes.

Since Mearns (1909:435) first recorded this species from the seas around the Philippines, it has been reported by McGregor (1918:10) at Luzon, and by Hachisuka (1932:323) at Mindanao and between Zamboanga and Isabella. It is reported by Delacour and Mayr (1946:73) as wintering in the sea south of the Philippines.

Phapiteron leucotis albifrons. Samar White-eared Pigeon.—♂, May 22. Bill purple with black tip; eyes red and edge of eyelid purple; feet reddish-purple; stomach contained large green seeds and red berries; one of a pair feeding at dusk in a bushy tree 20 feet high; testes moderately enlarged.

♂, July 8. Bill black with basal half purple; eyelids blue; feet dark red; testes moderately enlarged.

I saw only four of these pigeons, including the two specimens collected. Their flight was very rapid and direct. All four were seen in low brushy areas of the forest.

Ducula aenea chalybura. Bonaparte's Imperial Pigeon.—♀, September 16. Eye and edge of eyelid ruby red; bill slate-colored, with lower half of maxilla and tip of mandible pearl-gray; feet purple; the crop contained hard fruit the size of a hickory nut; shot in mid morning, one of a pair.

These pigeons were fairly common but were very hard to approach, partly because of the almost impassable woodland where they were usually feeding or roosting. From two to six were seen daily in late afternoon. They were active throughout the day, usually above the forest and using the upper branches of high trees for perches; and they seemed most active just before sundown. They chased, and were chased by, crows. Sometimes a group of four or five would be chased from the top of a high tree by the Tropic Hornbill which, working up the tree by hopping from branch to branch, drove the pigeons away one after another. They were usually seen singly or in small groups of up to six individuals. Their voice was a low penetrating *coo*. They were very wary and when disturbed usually flew out of sight, settling down in some distant location rather than returning to their original perch. They are heavy, powerful birds and are difficult to kill. I have hit four or five of these birds very hard with size 7½ shot from a 20-gauge shotgun and seen them coast into the brush on set wings, but I never recovered one of them.

The flight of these birds is powerful and magnificent, usually direct and very fast. On March 20 I first saw one of them "swan dive." Flying rapidly and rather high, the bird threw back its head and wings and rose, at a 45° angle, to a point 50 feet above the previous line of flight. As it slowed almost to a stop, it pivoted, and, with head and wings in the same position, went into an almost perpendicular dive. At a height of from 20 to 30 feet above ground, it levelled off and flew out of sight. From the start of the upward swoop to the levelling off, the bird's head and wings were held in the same position that a man holds his head and arms while executing a swan dive. It was a remarkable display. I saw it at least twice when I was fairly certain no other birds of the species were in the immediate vicinity. The dive was performed from March 20 through October. The dive terminated (1) by an upward swoop on set wings to a high branch of a tree where the bird lit and *cooed*, (2) by an upward swoop to a branch where the bird perched silently, or (3) by continuing flight out of sight.

These birds fed in the same trees with Tropic Hornbills, Philippine Cockatoos, Racket-tailed Parrots, and Coletos.

Cacatua haematuropygia. Philippine Cockatoo.—♀, April 27. Bill slate; eyes brilliant red; skin surrounding the eye alabaster with purplish tinge; feet slate-gray with blackish toes; crop full of white rectangular seeds ¾ of an inch long.

♀, August 22. Bill slate-blue; eyes coral red; skin around the eye alabaster; feet slate.

I shot the first specimen at dusk from a group of three birds going in and out of a large hollow limb 25 to 30 feet above the ground. For three or four days thereafter I saw two going in and out of the hole at dusk.

In late June I heard young in a nest in a hollow limb of a tree about 20 feet above ground. From March until September, I saw from 2 to 6 of these cockatoos daily, usually singly or in pairs. From September to November, I often saw small flocks of as many as 8 birds. They make a loud raucous call while feeding and occasionally even while in flight. Their flight is usually swift and direct with a rapid wing beat, although on three occasions I saw them elude capture by a hawk by rapid darting and weaving while squealing frantically.

Prioniturus discurus discurus. Racket-tailed Parrot.—♂, September 30. Legs blue-gray; bill lighter, or slate-blue.

I did not see these parrots until mid-summer, but from then on through October they were increasingly common. From the first of September through October 6 they could be seen at any time in the wooded areas. They were very noisy birds, screeching both in flight and while feeding in the tree tops with Bonaparte's Imperial Pigeons, cockatoos, Coletos, and Barred Graybirds. The flight was fast with a rapid wing beat, but seemed labored. The head of this specimen showed a molt in progress, the crown being mottled green and blue; the tail feathers were well-worn.

Loriculus philippensis worcesteri. Worcester's Hanging Parakeet.—♂, April 30. Eyes black; bill red; feet orange-brown; testes not enlarged.

♂, August 3. Shot feeding in vines 20 feet above ground in fairly open area; testes slightly enlarged.

♂, October 11. Bill red; eyes black; feet and legs orange; shot at dusk while feeding with Barred Graybirds, Coletos, and young Philippine Glossy Starlings.

I saw only five or six of these birds in addition to those collected. All were seen singly, foraging high in leaves or vines in tall trees. Their flight was fast and direct, appeared labored, and was accompanied by a high-pitched, rapid whistle somewhat like that of the American Golden-eye (*Bucephala clangula*). I did not witness the undulating flight reported by Delacour and Mayr (1946:103).

Cuculus saturatus horsfieldi. Oriental Cuckoo.—♀, October 22. Mandible black; maxilla blue-gray; inside of mouth and throat orange; feet and legs yellow; shot at dusk from the top of a stump six feet high; stomach contained iridescent green bugs and 2 "katydids" (orthopteran family Tettigoniidae). This specimen is the only bird of the species seen. It is reported from Mindoro and Palawan by McGregor (1909:372), and as a rare winter visitor by Delacour and Mayr (1946:106).

Cuculus canorus telephonus. Common Cuckoo.—♀, October 19. Eye brown; eyelid yellow; mandible black; maxilla green-gray; feet pure yellow; stomach contained gray worms 1½ inches long with yellow head and black stripes around the body; shot at dusk at the edge of dense woods after a shower; the only bird of the species seen. In action the bird was like a fly-catcher in that it took short flights back and forth from a perch, returning each time to the same tree to light on a limb or even on the vertical trunk of the tree.

Eudynamys scolopacea mindanensis. Philippine Koel.—♂, September 3. Eyes carnelian; bill grayish-blue except for brownish tip of maxilla; feet grayish-black; stomach contained two hard nuts the size of acorns; shot in dense low growth.

♀, October 14. Mandible light jade; maxilla slate color with brownish tip; eyes red; feet gunmetal; stomach contained hard seeds like dried peas; one of a pair in the top branches of dense woods.

I saw a total of eight of these birds, including three pairs, all in forest areas with dense undergrowth. I never heard them give any call. They were difficult to collect because of the dense brush, but they seemed curious and would watch me silently from one or two vantage points before disappearing. Once when I was trying to attract some small birds by "squeaking," one dived at me from some high cover, and I caught glimpses of it as it flew about in the brush for possibly 30 seconds before disappearing. The specimen collected October 14 was one of a pair which were well aware of my presence and watched me for two or three minutes from vantage points before I collected the female. After the shot, the other bird stayed around in the thick cover watching me for three minutes before leaving.

McGregor (1909:379) reports that the food usually consists of insects, but in one case fruit. Delacour and Mayr (1946:109) state, "mostly a fruit eater."

Centropus viridis viridis. Philippine Coucal.—♀, September 22. Eyes brilliant, dark red; bill black; feet bluish-gray; stomach contained a green insect similar to a katydid.

Only six of these birds were seen between June 30 and mid-October; (two seen singly, the others in pairs). They were shy and very difficult to see. On four occasions I heard them calling in the brush 5 to 15 feet from me and was unable to see or flush them. I did not even see the only specimen taken until after I shot it. I had been sitting silently in a fairly open low brushy area and heard the bird approach, occasionally calling, to the opposite side of a dense bush six feet away. I shot into the bush and found the bird in the center of the bush about two feet above the ground.

Their call is somewhat like that of a monkey: *chook, chook, chook, chook*, voiced fairly rapidly in a deep, low pitch. In flight the birds appeared reddish rather than brown, and their wing action was similar to that of a pheasant (*Phasianus*). The coucals were usually on the ground, sometimes in brush or low trees but never more than eight feet from the ground. On one occasion I followed a coucal for about one-half mile along the edge of the low brush at the coast. The bird covered this distance by a series of flights of about 75 yards each, commencing each flight after climbing up six or seven feet in the brush. The bird lit on the ground each time, and after two or three minutes made another flight.

Halcyon winchelli. Winchell's Kingfisher.—♂, May 13. Eye brownish-black; bill black; feet pale green; testes moderately enlarged; stomach contained bright green beetle-like insects.

This specimen was the only bird of this species I saw. It was perched motionless on a dead limb about 12 feet above ground in a fairly open forest area at dusk.

Halcyon chloris collaris. White-collared Kingfisher.—♂, June 13. Bill ivory except for black tip; eyes dark brown; feet brownish-gray; stomach contained claw of a crawfish; testes slightly enlarged.

♂, June 22. Bill ivory except distal 1/3, which was black; stomach contained green insects like katydids 2½ inches long; testes enlarged.

♂, July 3. Testes slightly enlarged.

Four or five of these common kingfishers could be seen at any time in open or grassy areas where there were a few scattered trees suitable for perches. They were frequently seen along the rocky coast and occasionally in the forest, but their preferred habitat was in the open palm tree areas. They were almost never seen over 150 yards from the sea but were seen only twice feeding at the water's edge or in the small tidal pools. They concentrated in areas where the underbrush had been cleared and burned by the Navy.

In voice, action, and flight they are similar to Belted Kingfishers (*Megaceryle alcyon*). Wolfe (1938:213) has reported a mating ritual in which both birds alternately leave their perch, fly to the ground and return. At Calicoan I saw this activity several times, but in each instance the birds were obviously feeding on ground insects. From a perch six or seven feet high they flew to the ground to catch an insect, returning immediately to the perch. The maximum successful detection distance was about 50 feet. Some single birds were also seen feeding in this manner. On only one occasion did I see both birds of a pair using perches in the same tree or bush while feeding in this manner.

In mid-morning one day in late May or early June I observed a somewhat similar activity. Two of these kingfishers were perched about a foot apart on the same limb

25 feet above the ground and 100 feet from the stump of a dead palm tree in which there were two old holes two or three inches in diameter and approximately 20 feet above the ground. The birds took turns flying to the dead palm tree, giving the rotten wood a peck, and returning to the perch. One bird would not leave the perch until the other had made its peck and returned. They were pecking at the stump of the dead palm tree near the two old holes. The birds did not light and then peck like a woodpecker, but hit the tree with their bill as they lit, occasionally giving an extra peck or two before returning to the perch. In spite of the soft rotten wood they seemed to make practically no headway on a new hole. I am unable to attribute any significance to this behavior, which I watched for nearly an hour and which was still going on when I left. Within the next two or three days, the area was cleared by bulldozers and I inspected the fallen stump. It was soft rotten wood and there were no visible insects. The two cavities showed no evidence of use as nesting sites, and the result of the recent work of the kingfishers was barely visible.

Single birds were often seen roosting at night in the branches of palm trees close to the trunk. Such a roost was used regularly by one bird for a period of about two weeks before I collected it on July 3. There was a great deal of chattering and calling in the early morning by this bird before he left his perch. On March 26 one was seen late at night roosting on a dead limb about eight feet above the ground; this perch was in a small patch of brush in a palm tree area.

Alcedo atthis bengalensis. River Kingfisher.—♀, October 7. Maxilla black; mandible orange-coral; eyes brown; legs and feet brilliant orange-coral; stomach contained aquatic insects.

The single bird of this species seen was found feeding in pools formed by the spray thrown up from the surf along the rocky coast. This bird was first seen late in September and finally taken on the above date while it was fishing from perches in the crevices of the rocks. It was usually found around the same pool, which was about 25 feet in diameter and surrounded on three sides by rock walls 10 feet high.

Merops viridis americanus. Chestnut-headed Bee-eater.—♂, October 14. Bill shiny black; eyes brilliant dark red; feet and legs grayish-black; wide pads on feet; stomach contained small bugs.

The flock of five bee-eaters from which this one was taken were the only bee-eaters I observed; I watched them for about two hours as they fed from trees of medium height at the edge of dense woods. They flew much like flycatchers, leaving their perch for a short flight after an insect and then returning to the perch, where they would stand very straight like a night heron (*Nycticorax*) and bow ceremoniously two or three times. They were feeding on the wing, catching insects in the air as well as off the leaves of adjacent trees. Their voice was rather soft and pleasant, a melodious whistle reminiscent of some of the notes of the Philippine Oriole.

Eurystomus orientalis orientalis. Dollar Bird.—♂, May 2. Bill and feet tomato-red, with the very tip of the mandible black; eyes brown; testes not enlarged; stomach contained insects.

♂, October 17. Eyes brownish-black; bill and legs orange; stomach contained bright, iridescent green bugs; taken at dusk while hawking insects from a perch on a dead stump 10 feet high.

These birds were rather common; as many as four or five could usually be seen during a half-hour walk. Their flight is strong and buoyant, much like that of the Nighthawk (*Chordeiles minor*). During all the months I was on the island, these birds would usually

form in flocks of 6 to 10 just before dusk and, flying high in the sky, give an astonishing exhibition of aerial acrobatics. Throughout these maneuvers they called in their peculiar harsh voice. In March and early April I observed what was probably a courtship flight. This flight was at about tree-top level and never approached the heights of the usual evening flights which were not as common at this time of the year. This possible courtship flight was similar to the "swan dive" of Bonaparte's Imperial Pigeon but much less spectacular. It was a graceful buoyant maneuver of short duration, lacking the speed and sweep of the Imperial Pigeon's dive.

The Dollar Birds are accomplished and graceful flyers. In late June I once saw one flying about 10 feet above ground, approach to within 4 feet of the trunk of a tree, and then rise straight upward and go directly into a hole 20 feet above the ground.

They call back and forth throughout the day in their unpleasant harsh squawk while in flight as well as while hunting or resting. The birds were active throughout the day and could be seen at any time resting or feeding from perches on dead limbs or stumps in open areas or at the edge of the forest. Their perches vary in height from 10 to 30 feet. I have seen them catch insects on the wing, from trees or bushes, and from the ground. They were attracted to the same holes which attracted Coletos and Crimson-backed Woodpeckers.

Buceros hydrocorax semigaleatus. Calao or Rufous Hornbill.—♀, June 8. Casque and base of bill red; eyes aquamarine; legs and feet red; stomach contained insects like katydids, and the intestines contained seeds like those of a watermelon; shot from a group of three feeding in dense woods.

♂, June 23. Casque and base of the bill red, shading through yellow to ivory near the tip; legs and feet red; eyes corn yellow; shot from a bushy tree while feeding on soft fruit the size and shape of a hazelnut.

♀, July 18. Casque, bill, legs, and feet same as June 23 specimen; eyes aquamarine; one of a pair; ovary not enlarged. This bird was covered with ticks and lice but seemed in good physical condition. Shot from the top of a tall tree while feeding with the ♂ taken the same date.

♂, July 18. Casque, bill, legs, and feet same as June 23 specimen; eyes corn yellow; presumed mate of preceding ♀; shot when it flew to where the ♀ had fallen; testes not enlarged.

♀, August 22. Eyes aquamarine; other soft parts as above; ovary not enlarged.

From February through August, I saw these birds singly or in pairs; twice, as on June 8, three birds were seen together. On the average, I saw one or two birds a week always in or above dense forest. In September all the local birds formed into a single flock of some 15 to 18 individuals. From this time on they became very noisy and could usually be heard calling at dawn and at dusk, or at any time during the day if disturbed in the forest. I believe the flock toured the island up and down the high central ridge for they passed my shooting spot almost every afternoon, going either up or down the island. There was certainly only one flock in the central part of the island, at least, because (a) one distinctively buff bird was always seen in the flock and (b) two flocks were never heard calling (their calls can be heard for at least a mile). I am certain that this flock moved at least two miles up and two miles down the island from my quarters.

The flight of these hornbills is much like that of a pelican (*Pelecanus*) in that it consists of a few wing strokes followed by a long glide. A pronounced "swish" was audible during their flight. Their voice or call was reminiscent of that of the Sandhill

Crane (*Grus canadensis*) in its eeriness and tonal carrying qualities. The native name, "Calao," gives an excellent idea of the sound of their call. I am quite sure I once heard one give the same call as the Tarric Hornbill, and on another occasion I heard a noise which could have been made by beak-snapping or by knocking the beak against a large limb or the trunk of a tree.

On five or six occasions when these hornbills were feeding in the tops of trees near the extreme ends of branches, I have seen them lose their balance and fall from the tree until they were able to catch lower branches with their feet or wings, or until they recovered themselves sufficiently to fly. It was the noise of their falling through the branches that called my attention to the three birds seen on June 8. They sometimes fell nearly 20 feet before recovering flight.

The edges and insides of their bills were sticky with fruit or sap, and most of the bill was covered with a yellowish powder-like pollen.

The Calaos were easily frightened in the woods and at the first unusual sound would cease activity and concentrate on locating the source and cause of the noise. After a moment or two they would quietly fly away one by one or they would all leave at once with a frightful honking clatter. They usually commenced their flight with a short down swoop to gather momentum. A pair first seen on March 21 in the vicinity of four very tall bushy trees in dense forest stayed in that immediate area for a little over a month until the area was cleared by blasting and bulldozers. Usually two and never more than two were seen in that locality. During this time they would occasionally call at morning and evening, and six or seven times I heard them call during the middle of the day.

At about 5:00 p.m. one day in early October, the flock was leisurely crossing a low valley, feeding in the small bushes and banana plants. One bird flew up and lit on a bare limb 40 feet above the ground. Slowly, one by one, the others flew up and alighted side by side on the same limb, all facing in the same direction. Each of the last two or three had to knock another off the limb in order to find room to alight. While this jockeying for the last place on the limb was still going on, the whole flock suddenly scattered and resumed their feeding in the valley, slowly working into the forest and on up the island. It was about five minutes from the time the first bird flew to the limb before the flock resumed feeding.

It is interesting to note that in the above males the eyes were corn yellow, and in the females they were aquamarine. Hachisuka (1934:155) gives the iris as "light yellow, (light green in living birds)."

Penelopides panini samarensis. Tarric Hornbill.—♂, May 12. Bill black, brown, and ivory; eyes dark red to reddish-brown; feet grayish to black near the toes; stomach contained dark green grape-like berries, which were full of flat seeds like those of a cucumber; testes not enlarged.

♂, May 26. Eyes ruby-red, feet slate-gray; stomach contained a bright green katydid and seeds; testes not enlarged.

♀, June 18. Bill agate with gray at the base; eyes red; stomach contained fruit, or vegetable matter, and a bright green beetle; ovary not enlarged.

♂, October 23. Eyes red; feet slate; stomach contained hard brown seeds like dried peas; shot from the top of a high tree on the edge of a cleared area; molting.

I saw the first pair of Tarric Hornbills on March 26, and thereafter an average of two a week through October, always singly or in pairs except on two occasions in October, when three were seen together. They usually traveled in pairs, foraging up and down the island, never in the company of other birds.

Their call was loud and penetrating with good carrying qualities, and sounded exactly like a child's Halloween horn—a raucous and tinny *toot toot*. Often two birds as much as 150 yards apart would *toot* back and forth as they worked up or down the island. Their flight, consisting of a few wing strokes and then a glide, usually started with a downward swoop from the treetops and terminated in a short upward glide to one of the lower branches of a tree.

These hornbills seemed to have an active dislike for all other birds and were frequently seen to chase Imperial Pigeons and Racket-tailed Parrots from trees by hopping up the branches after them. They are awkward and gawky both in flight and while in trees, although adept at catching food. I once saw one leave the branch of a large tree and swoop down to the bare trunk of a tree some 100 feet away after a lizard which was climbing the tree trunk. Upon reaching the lizard, the bird seized it in his beak and fell, flopping helplessly to within four feet of the ground before recovering flight and returning to a different branch of the first tree to chew and swallow the lizard. On a few occasions I have seen a Tarictic Hornbill lose balance while reaching for food at the tip end of a branch and fall from the tree. These hornbills were almost always seen in the treetops in the forest although sometimes they hopped around on fallen logs or large limbs near the ground.

Dendrocopos maculatus leytenis. Pygmy Woodpecker.—♀, May 31. Eyes brown; maxilla black; mandible yellowish except for a black tip; feet green.

This specimen was the only bird of this species that I saw. It was traveling with a pair of Philippine Creepers, one of which I collected. The woodpecker was shot while pecking and chattering on a dead limb in the crown of a tree some 30 feet high. Its flight was typical of woodpeckers.

Chrysocolaptes lucidus rufopunctatus. Crimson-backed Woodpecker.—♀, May 10. Eyes pinkish-red; bill black; feet greenish.

♀, August 7. Eyes bright red; bill blackish-brown; feet greenish; stomach contained 1½-inch long grubs; shot at dusk 30 feet from the ground in a dead tree.

♀, September 9. Eyes red; bill black; feet greenish-gray; stomach empty; shot at 8:00 a.m.

♂, September 9. Eyes red; feet greenish-gray; bill black; stomach empty; shot at 8:00 a.m. with above specimen.

♂, September 9. Eyes red; bill blackish-brown; feet greenish-gray; stomach empty; shot at about 8:45 a.m. and about 100 yards from where the two previous specimens were taken.

In addition to the above specimens only five other birds of this species were seen, although a flock of five birds believed to be of this species was seen just at dark on April 3, some 30 feet up in a huge tree, working in and out of three or four holes in the tree. This same group of five birds was seen two or three times during the following week at the same holes just at dark.

In flight, voice, and behavior these birds are very much like the North American Flicker (*Colaptes auratus*). Alive they look or appear much more crimson than they do as skins, and their necks look incredibly thin for a bird of their size.

On September 9 I watched three of these birds for about 10 minutes before the pair was collected at 8:00 a.m. The other specimen collected at 8:45 on the same date is believed to be the third member of this group. The three birds were chasing each other in short flights between trees in a fairly open forest area. They would alight at the base of a tree and then chase each other up and around the trunk to the crown of the tree, then fly to

another tree to repeat the procedure. Sometimes only two would take part in a chase, although all three kept chattering. Finally the female and one male flew to opposite sides of the trunk of a tree, leaving the other male about 100 feet away. As the pair moved jerkily up the tree trunk, chattering and pecking around the trunk at each other, they were collected. The third bird flew into the woods and was probably the one collected three-quarters of an hour later.

Dryocopus javensis pectoralis. Black Woodpecker.—♂, May 4. Maxilla black; mandible bone color; eyes bright yellow; feet slate; stomach crammed with small winged insects like flying ants; shot at dusk in dense woods.

I saw a total of six, two pairs and two single birds, all during April and May. They were extremely wary and very difficult to approach. Twice the birds were seen around two very tall trees which had several holes in a perpendicular line such as those made by the Pileated Woodpecker (*Dryocopus pileatus*). These holes were at least 50 feet from the ground. I saw a single bird drumming on a dead stump in very dense woods.

Hirundo tahitica javanica. Pacific Swallow.—September 14. Two specimens taken along the rocky coast; neither could be sexed with certainty.

These swallows were never seen over wooded areas except during migration in October. They were found along the barren rocky coast from the time I visited that area in mid-summer until the end of October. Two to four could be seen at any time flying along the coast in and around the rock formations.

On October 8, when I started my field observations at the usual time, 4:30 p.m., I saw a steady stream of these birds flying south. Those along the coast were flying about 20 feet above the water; those flying over the land were about 100 feet above the trees. During the hour and a half that I was in the field, from 20 to 40 were always visible. The flight continued at least until dark, and may have continued after dark. The wind was fairly brisk from northwest by west, and the birds were flying almost directly south. A large number of individuals must have passed over the island even during the short time I was aware of the flight. After this date I occasionally saw a few of these swallows along the coast. No specimen was collected from this flight, and the birds were not observed with binoculars; the identification is based solely upon familiarity with those seen along the coast, identified by the two specimens above.

Motacilla cinerea caspica. Gray Wagtail.—♂, October 2. Eyes and bill black; feet and legs cinnamon brown; stomach contained what appeared to be ants.

♂, October 18. Bill black; feet and legs tan; shot at dusk at the edge of dense woods; testes small.

Between October 2 and 18, I saw a single bird four times just at dusk, feeding along a bare rocky path in an open area of low brush. The two collected were feeding on bare rocky places where ants and flies had collected in large numbers. These wagtails are sleek, stately birds. Their flight is buoyant and undulating. Once or twice when alarmed, they ran over the rock and disappeared in the thick underbrush instead of flying away.

Anthus gustavi. Petchora Pipit.—♂, October 13. Eyes brown; maxilla black; mandible, legs, and feet flesh color; stomach contained ants; shot while it was walking on the ground in open woods.

This is the only bird of this species I observed. Although not previously reported from Samar, it has been widely recorded in the Philippines, including Leyte.

Coracina striata kochii. Barred Graybird.—♂, May 11. Eyes dark red; bill black; feet blackish-gray; stomach contained a green katydid; shot from the top of a dead tree near the edge of the forest.

♂, June 12. Eyes deep garnet red; stomach contained vegetable matter; testes somewhat enlarged; one of a pair that stayed very close together while working from tree to tree.

These birds were always seen in the woods in thick cover and near the tops of the trees. From May 11 until late August they were seen singly or in pairs. During this period they were silent and seldom seen—not over an average of one bird a week. The specimen taken June 12 was collected some 75 yards from a spot where I had seen a pair a few days previously. After this specimen was shot and fell to the ground, the other bird of the pair flew to its side three or four times before flying away as I approached to pick up the specimen. During this spring and early summer period, the graybirds did not appear frightened by my presence or actions, and they were never seen with other species.

In early September these birds began to appear in small flocks; and in October, flocks of as many as 100 would settle in two or three trees much like Starlings (*Sturnus vulgaris*) in the fall. During this time of the year they were often in the same trees with Coletos, Philippine Orioles, Philippine Cockatoos, and Glossy Starlings. While feeding in trees with these other species they were very noisy, sounding like a flock of Starlings, but upon the slightest disturbance they would become silent and fly off—one, two, or three at a time rather than in a general flock movement. In mid-October these large noisy flocks began to disappear rather rapidly.

Lanius cristatus lucionensis. Brown Shrike.—♀, March 26. Eyes dark brown; bill pearl-gray, somewhat purplish near base and black at the tip; feet pearl-gray; ovary slightly enlarged; taken by sling-shot in thick brush.

September 30. Two of undetermined sex, believed to be males; eyes black; feet and legs blue-gray; bills black except basal two thirds of mandible, which was ivory; stomach of one contained grasshoppers and beetles, the other grasshoppers only.

♂, October 6. Eyes brownish-black; bill shiny black except basal half of mandible, which was mother of pearl; feet and legs blue-gray; stomach contained two grasshoppers; shot while hunting from a small bush in an open area of about 2,500 square yards. Three others of this species were hunting in the same area.

October 14. One specimen, sex uncertain. Maxilla black, mandible pearl; feet slate-blue.

In the spring and summer these birds are shy and scarce; only three were seen from mid-February to mid-September, and they were quiet and elusive, inhabiting only the densest bushy areas. About the middle of September these shrikes began to appear everywhere in small noisy flocks; in October four or five could be seen within a half hour at any time of day. They hunted from dead twigs or branches about 10 feet high from which they flew to the ground and back, apparently hunting grasshoppers or other insects. Throughout the fall days they were noisy in flight and while hunting. In flight their tail feathers seemed to wave or flutter like paper streamers. The usual flock consisted of from five to eight birds, and the majority of the flocks appeared to be composed of young birds.

Artamus leucorhynchus leucorhynchus. White-bellied Wood Swallow.—Only one specimen, a juvenile of undetermined sex, was collected; it was taken July 22 from a flock of seven. At least three others in this flock were juveniles. There were three other, similar, flocks in the immediate vicinity. This is the only occasion on which I saw these birds either in or over the forest areas of the island. They were usually in palm groves or partially cleared areas. These wood swallows were among the most common birds of the island and were least disturbed by the activities at the Naval base, even nesting in the

center of the camp area. Four to six of these birds could be seen at any time, usually feeding on the wing or from perches. The perches were dead twigs or phone wires from 10 to 20 feet high; they would fly from these perches to the ground after insects from 10 to 100 feet away.

The flight of the White-bellied Wood Swallow is without parallel in grace and deftness. It is similar to the flight of the Purple Martin (*Progne subis*) and is the best exhibition of complete mastery of the art of flying that I have ever seen. At Calicoan these birds were most active in flight just before sunset. In the palm groves they soared back and forth just over the trees, riding the sea breeze with motionless wings. Often a flock of 15 or 20 would gather high in the sky at evening and for an hour or so perform aerial aerobatics. Except when they were feeding, their flight was accompanied by much twittering, which could even be heard during the high evening flights.

These birds apparently nested in May and June in the hollow tops of broken-off palm trees at heights of from 10 to 30 feet. As the palm areas where they were most numerous were cleared for warehouses, they moved into partially cleared or fairly open wooded areas. This change of habitat was fortunately after the presumed spring nesting season. They were especially attracted to areas that had been burned over.

Microscelis gularis gularis. Philippine Bulbul.—♂, May 2. Bill, eyes, and feet brown; testes enlarged.

♀, May 23. Eyes brown; bill and feet brownish-black; stomach empty; ovary moderately enlarged; one of a pair chasing noisily about in dense low brush; shot at 6:00 p.m.

These birds were very common and in flight, action, and habitat were much like our Wood Thrush (*Hylocichla mustelina*). Five to seven of these bulbuls could be seen at any time of day in thick brush, where they noisily chased one another. The voice and calls were quite varied, ranging from *cheep* and a cat-like *mew* to clear, liquid, melodious whistles. They were curious, and I could attract them by whistling or "squeaking"; then, after watching me for a moment or two, they would fly off through the woods while calling harshly and loudly.

Monticola solitaria philippensis. Blue Rock Thrush.—♂, September 18. Eyes blue-black; bill and feet black; stomach contained grape-like fruit full of seeds; wing 112; tail 70.

♂, October 7. Eyes brown; bill and feet black; wing 113; tail 76.

I never saw these birds anywhere except on the barren rocky coast. They were wary, always flushing just out of gun range and flying 50 to 75 yards farther up the coast, in and out of the rock formations. When flying toward me and on becoming aware of my presence, they would fly high or wide around me. They were extremely difficult to see, for they were usually on the bare rock, which their color perfectly matched. I sometimes saw them perched on low branches of scrub bushes or even weeds, usually within three feet of the ground. Although not previously reported from Samar, this migrant has been widely recorded from other islands in the Philippines.

The Rock Thrushes were seen from early September through October. Four to six were usually seen in three-fourths of a mile along the coast until nearly the end of October when they became much scarcer. I never heard them calling or singing.

Phylloscopus borealis. Arctic Willow Warbler.—♂, October 7. Maxilla brownish black; mandible, legs, and feet tan.

October 7. Two specimens of undetermined sex; eyes brownish-black; other soft parts as above except that one had mandible with dark tip.

The Arctic Willow Warblers appeared very suddenly and in great numbers on October 6 and 7, remaining only two or three days, although scattered individuals were seen during the following week. Their appearance was much like a wave of migrating wood warblers (Parulidae) in eastern United States. No voice or call was heard. They were seen feeding in the tree tops, the brush, and even in the sparse weeds and tufts along the coast. They seemed to feed from leaves and branches, as well as on the wing. They did not associate with any other species although they arrived with the large wave of migrants during the first week of October.

Orthotomus atrogularis frontalis. Sharpe's Taylor-bird.—♂, June 6. Eyes light brown; maxilla dark brown; mandible and feet flesh-color; testes slightly enlarged.

♂, August 30. Soft parts same as above; testes slightly enlarged.

These birds were regularly seen in the low bushes of either open or heavily wooded areas—an average of three or four per week throughout the time I was on the island. In the fall they traveled from bush to bush in small flocks of about 10 individuals. I observed such a flock on September 3 traveling with Oriental White-eyes, Philippine Flowerpeckers, and Van Hasselt's Sunbirds; the largest flock, consisting of 15 to 20 Taylor-birds, was seen September 9. As these birds were always in dense low brush they were difficult to collect because they could not be seen at a sufficient distance to avoid blowing them to pieces, and it was nearly impossible to locate one after it had been shot. At no time did they appear to be disturbed by my presence; I frequently walked along with them as they slowly worked through the brush within two or three feet of me.

While working through the brush feeding, they uttered a very pleasant soft squeak and their song, heard mostly in the spring and early summer, was surprisingly clear and loud for such a frail bird.

Muscicapa griseisticta. Gray-spotted Flycatcher.—September 30. One specimen; sex not definitely determined. Eyes, feet, and bill jet black.

This specimen is my only positive identification of the Gray-spotted Flycatcher, although two birds believed to be of this species were seen during the following week. The specimen was collected while it was feeding on the wing in short flights from the limb of a dead tree in a fairly open forest area.

Rhabdornis mystacalis minor. Philippine Creeper.—♂, May 31. Eyes brown; bill and feet black. One of a pair traveling with a Pygmy Woodpecker. Testes moderately enlarged.

♂, June 22. Eyes brown; bill and feet black. Stomach empty. Testes slightly enlarged. Shot at 6:30 p.m. from the top of a tree approximately 30 feet high.

Only two other birds of this species were seen; both were single birds on dead limbs at the edge of the woods in the last of June or early July. In behavior these birds are similar to nuthatches (*Sitta*), although they seemed to spend most of their time in the crown of the trees, feeding from leaves or blossoms, rather than on the main branches. No call or song was heard.

Dicaeum papuense papuense. Philippine Flowerpecker.—April 30, May 8, May 20, June 26, July 3, August 31. Six males, all with enlarged testes except for the specimen of August 31; bills and feet black; eyes, brown (5), brownish red (1).

September 3, juv. ♂. Mandible and base of maxilla deep yellow; feet pale brownish-black.

These flowerpeckers were among the most common birds of the island, being seen singly, in pairs, and in small flocks of six or eight individuals. They were often seen traveling with white-eyes, sunbirds, and Taylor-birds.

Their fast, darting flight was difficult to follow when they were chasing each other from tree to tree. During flight they were almost always twittering and from March through October they were active from dawn until dark. I have seen them hover like hummingbirds (Trochilidae) before flowers or clusters of leaves. They were usually seen in the forest or the tall trees at the edge of open areas, only rarely in low brush or bushes, never in palm groves. Their flight was usually from tree to tree but on several occasions I noted flights above the forest for a distance of one-fourth of a mile.

I am certain a nesting bird was located about May 20 some 12 feet from the ground in the thick vines covering a dead stump. For a period of two weeks I could frighten the bird from this place at any hour of the day by shaking the vines. When frightened, the bird flew about 100 feet into the woods, and when I returned about one-half hour later, it would have returned to the same place in the vines. McGregor (1909:626) notes that Bourns and Worcester reported these flowerpeckers breeding in August on Samar. Adult males collected at Calicoan on April 30, May 8 and 20, and July 3 all had much enlarged testes; the specimen of June 26 had testes about half enlarged; that of August 31 had small testes.

Dicaeum trigonostigma cinereigulare. Orange-breasted Flowerpecker.—3 ♂♂, May 11, May 14, and June 28. Eyes brown or dark brown; bills, legs, and feet black. All breeding birds; testes greatly enlarged. All shot from high perches on dead twigs of tall trees in fairly open brushy areas, singing (May 14 and June 28) in late afternoon or evening.

In addition to those collected, two or three others were seen in late May or early June, one of them in dense woods. Whitehead (Ogilvie-Grant and Whitehead, 1898:243) reported eggs found on Samar in July, while Bourns and Worcester (McGregor, 1909:633) reported the birds breeding in August.

Nectarinia sperata. Van Hasselt's Sunbird.—♂, March 18. Eyes, bill, and legs black; testes enlarged; stomach contained small flies, an ant, small spider, and a mosquito. One of a pair singing.

♂, May 30. Testes enlarged, singing from a dead twig 20 feet from the ground; chased from tree to tree for about 400 yards before collected.

♀, June 4. Eyes olive; bill and feet black; stomach contained 3 small snails and a green mosquito-like fly; ovary much enlarged.

A total of about 15 birds of this species was seen during the time I was on the island. Their actions were much like those of wood warblers, and their song was clear, loud, and very pleasing. They were often seen in the company of Yellow-breasted Sunbirds, Philippine Flowerpeckers, white-eyes, and taylor-birds, but were usually in the higher cover with flowerpeckers rather than in the lower brush that was worked by white-eyes, and taylor-birds. One large mixed flock containing at least four male sunbirds was seen traveling along the high central ridge of the island on September 3.

Zosterops palpebrosa basilanica. Oriental White-eye.—June 7. One specimen, sex undetermined; bill black, mandible gray at the base; feet pearl-gray; one of four that were singing and chasing each other in the tree tops.

♂, June 6. Eyes brownish-gray; bill gray, mandible gray at the base; feet pearl-gray; testes slightly enlarged; probably one of the four noted above.

Few white-eyes were seen, possibly a total of 15. It is probable that others were seen but not identified because of their similarity to other small birds in the area and because of the dense brush in which they were usually found. Those seen and identified were usually with taylor-birds or sunbirds in low thick brush. Their song was a clear pleasant whistle but lacked the power and distinctive notes of the sunbirds.

Aplonis panayensis. Philippine Glossy Starling.—September 9. Two juveniles of undetermined sex; eyes red; feet and bill black; shot from a flock of 12 to 15 birds.

♀, October 7. Eyes brilliant red; bill, legs, and feet black; stomach contained grape-like berries; shot from a flock of 6 to 8 birds which were working in and out of holes near the top of a high dead tree about an hour before dark.

October 14. Juvenile of undetermined sex (probably ♂) eyes red; bill and feet black.

In voice, flight, and behavior these birds are very similar to our Starlings (*Sturnus vulgaris*).

I have found no migration or local seasonal movements of this species recorded in the literature, but it is reported as a common resident throughout the islands. No birds of this species were seen on Calicoan prior to September, when juveniles appeared rather suddenly in flocks of 10 to 30 individuals. They stayed together in their own flocks; when not feeding they used high dead trees or branches for perches. When disturbed, they wheeled and flew off in a tight flock that could be broken up only by a shot. Occasionally a small flock would join a larger flock in a tree, but after a while approximately the same number that joined the first flock would fly away together. I never saw a flock consisting of both adults and juveniles, nor did I see both age groups feeding in the same area at the same time.

The adults appeared equally abruptly and in large numbers during the first week of October and, save for a few scattered individuals, disappeared in about one week. The largest concentration was on October 6, 7, and 8, when several flocks of as many as 50 birds could be seen at any time of the day. I estimated that between 300 and 500 of these adults were often feeding in the treetops in an area of about 10,000 square yards. The adults were much noisier than the juveniles. On October 14 a total of no more than 20 adults were seen, and a day or two later there were none except for an occasional pair or single bird, although a few scattered flocks of juveniles were encountered through October.

Sarcops calvus. Coletos.—♀, May 18. Eyes light brown; feet and bill black; wattles ruddy flesh-color; ovary much enlarged; stomach contained hard black seeds, pea-size; one of a pair.

♂, May 27. Eyes brown; one of five, high in a big tree.

♀, August 21. Eyes brownish-black; wattles flesh color; stomach contained 2 seeds the size of a pea; shot at 5 p.m.; ovary slightly enlarged.

These are among the most common and interesting birds of the island; usually seen in pairs or small flocks of four to eight individuals, though in the fall, flocks of as many as 50 were seen. They were active throughout the day, found in all localities except palm groves, often seen traveling with the Philippine Orioles, and feeding with them as well as Barred Graybirds, cockatoos, juvenile Philippine Glossy Starlings, and Bonaparte's Imperial Pigeons. Delacour and Mayr (1946:245) well describe the call note as "a peculiar click, metallic but not displeasing"; however their voice and calls are varied. They have a clear melodic whistle, somewhat like that of the Philippine Oriole, and were often heard mewing much like our Catbird (*Dumetella carolinensis*).

On March 10, just at dark, I saw three entering a hole in a tree some 20 feet above ground, presumably to spend the night. I noted this same procedure four or five times during the rest of the month at the same place, and three birds were always present. A pair of Philippine Orioles usually went to roost at about the same time on a branch about 15 feet from the hole used by the Coletos, and neither species seemed to pay any attention to the other. Some of the holes usually frequented by the Coletos were much like

those made by the Pileated Woodpecker (*Dryocopus pileatus*). Their flight is like that of the Grackle (*Quiscalus quiscula*), but they were often seen to alight with a nearly perpendicular upswop of 10 to 20 feet to a branch, or directly into a hole without touching or alighting before entering. A pair was once seen taking turns flying from a hole to a tree about 100 yards away and returning to the tree. I think they were feeding on insects which were evident in great numbers on the tree.

Dicrurus hottentottus striatus. Spangled Drongo.—♂, June 28. Eyes deep reddish-brown; bill, legs and feet black; testes much enlarged; one of a pair singing in dense low growth.

♂, August 21. Eyes bluish-black; bill and feet black; testes not enlarged; stomach contained small insects.

Although usually seen in dense woods on Calicoan, these drongos came out into cleared or open areas at evening and were seen apparently catching insects on the wing, off tree trunks, or from the leaves of banana plants. At this time I have also seen them flying around a puddle much like butterflies. They would occasionally light on a tree trunk to pick off a few insects before resuming flight. At dusk they would sometimes perch on a limb about five feet from the ground or on a fallen log and give a slow series of five or six sharp whistles, each call in the series being a little higher in the tonal scale than the preceding one. If disturbed in this activity, they would fly to a similar place about 100 feet away and continue calling.

These birds were usually seen singly or in pairs until fall, when flocks of four or five were frequently seen. They were fairly common, and two to four could be seen at any time of day during a half-hour walk in the forest. Three birds were frequently heard calling or singing in an area of one acre. They seemed particularly attracted to deep ravines or low thick bushy areas.

The song and call of these Spangled Drongos was very similar to that of our Catbird (*Dumetella carolinensis*) or Brown Thrasher (*Toxostoma rufum*), being a series of clear, loud, melodious whistles. They also *mewed* like the Catbird.

Oriolus chinensis chinensis. Philippine Oriole.—♂, May 8. Eyes brownish-purple; bill translucent reddish-purple, darker near the base; feet slate-color; testes much enlarged; stomach contained fruit like a grape and some seeds.

♂, June 21. Eyes brownish; bill translucent flesh-color; feet blue-gray; testes slightly enlarged; stomach contained seeds and vegetable matter.

During the time that I was on the island, from 2 to 10 of these orioles could be found on any day. Prior to mid-summer they were mostly seen in pairs, while in the fall they were usually seen in small flocks. In every month they were seen frequently with Coletos, and in the fall were often seen feeding and traveling with juvenile Philippine Glossy Starlings, Barred Graybirds, and cockatoos. They were usually seen in fairly open forest or at the forest edge. They were never seen in the palm groves.

Their voice and call was much like that of that of the Cardinal (*Richmondia cardinalis*), a clear loud liquid whistle, the notes of which are unusually well suggested by the native name *tu li hi ao*. The call was easily imitated, and during the time I was on the island, one or more of these orioles were frequently decoyed by my whistles. Another call given by these birds was similar to that of the cockatoo, but not so loud nor so harsh.

The only display noted was a bowing ceremony between two birds facing each other on a dead log late in the afternoon of February 21. This ceremony was interrupted by my presence, and the birds flew off. Just at dark on several days in early spring a pair

of these orioles gathered in the same tree with three Coletos as reported above. Their movements were not particularly localized, and they were often seen to fly out of sight; only crows, hornbills, hawks, cockatoos, and pigeons seemed to range farther.

Corvus macrorhynchus philippinus. Large-billed Crow.—♂, July 9. One of a pair; testes moderately enlarged (8 mm. by 6 mm.); one of a pair, the other remaining in the immediate vicinity cawing for some time and then following me for a quarter of a mile before flying away. Wing 305, tail 216, culmen 61.

Crows were regularly seen during the entire time I was stationed on the island. Although there was no variation in the overall numbers seen daily, there was a local concentration of some 20 to 25 birds at a point on the shore where garbage was being dumped into the sea.

In flight and general behavior these birds were like the North American Crow (*Corvus brachyrhynchus*). They ate garbage and carrion along the roadside. They chased and were chased by other birds, including Bonaparte's Imperial Pigeons and Serpent Eagles. They were usually seen in pairs or small flocks of 5 or 6, but would gather quickly in larger flocks to chase a hawk while cawing loudly. The maximum chase after a hawk was not over a quarter of a mile. They were not much disturbed by men or automobiles but were careful to move a bit away (out of gun range) and return to their carrion or former perch as soon as one had passed.

As there are two species of crows reported from Samar it is unfortunate that I did not identify or collect the smaller one, *Corvus enca*. It is especially unfortunate that a crow was not taken while giving the very uncrowlike call noted by previous observers. Two entirely different calls were made by the crows on Calicoan, the first was the usual deep guttural *caw caw* too well known to require comment. The other call was a loud, piercing shriek or whistle heard daily from March to mid-July, usually at dawn or just at dark in the evening. I have heard both calls from crows in the same tree. I was never able to see any difference in size or behavior of the crows seen. I actually heard one, apparently no different from *Corvus macrorhynchus*, give this piercing whistle as it flew directly over me and well within gun range, but I didn't have time to shoot before it had passed and disappeared in the forest.

For a few days during the last week of June, four crows spent the night in a palm tree near our tents, although they usually were seen roosting in the tall trees in the dense growth along the high central ridge of the island. They usually roosted in small groups of 5 to 7 birds but occasionally in the spring birds roosted alone. Throughout the time of my observations, a daily regular northward flight up the center of the island was seen. This flight consistently had peaks of 35 birds visible at one time, at 4:45 p.m. and again at 5:45 p.m. The time of these flights was so regular that I had no need to consult a watch to gauge my field time properly so as not to miss dinner. They were, perhaps, flying to a communal roost but I never saw them returning in a regular flight. I never heard these birds give the piercing call during this evening flight.

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NEW LIFE MEMBER



Stuart Houston, born on September 26, 1927, received his M.D. from the University of Manitoba in 1951. His interest in ornithology developed and grew with the founding (in 1942) and growth of the Yorkton Natural History Society, in Yorkton, Saskatchewan where he makes his home. He is now president of this society and also of the Saskatchewan Natural History Society, and a contributor to "The Blue Jay," the official bulletin of the latter organization. The photo, taken during the Christmas bird count at Dilke, Saskatchewan, in 1951, shows Dr. Houston wearing buffalo coat and moccasins, clothing appropriate to the 28° below zero weather of that day. His interest in birds has led him to band over 6200 individuals of 83 species.